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ABSTRACT

This paper considers the processes involved as children and adults learn a new language. For the child this can mean learning his native language. One difference between learning a language in a classroom and in a "live" situation is motivation toward communication. The child learning his mother tongue is highly motivated to communicate, as are children hoping to be accepted by other children. To be successful, the language class must become a period of vital communication between teacher and pupils. More pressing for most students than a general desire to be able to communicate at some future date is a specific desire to be able to communicate in some actual situation where what is being communicated is of vital concern to the persons involved. (VM)

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THE COGNITIVE STRATEGIES OF LANGUAGE LEARNING

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Some things children seem to learn naturally; others they have to be taught. Unaided, they seem to learn to walk and to perceive the world visually; on the other hand, nearly all children have to be taught arithmetic. Language is a peculiar embarrassment to the teacher, because outside school children seem to learn language without any difficulty, whereas in school with the aid of teachers their progress in languages is halting and unsatisfactory. It is common experience that when translated to a town where their native language is not spoken children will become reasonably proficient in the new language in the space of six months. It is equally common experience that after six years of schooling in a second language, whatever the teaching method, most children emerge with a very poor command of the language. The first set of experiences shows that children are possessed of a very powerful device for learning languages; the second set of experiences shows that the school harnesses this device only in a most inadequate manner. This in turn argues that we have a poor understanding of the natural device for learning languages. My paper is about this device, about common beliefs as to its scope, and about the implications of what we know of the device for the language classroom.

The function of the human language learning device is defined with reference to a natural language such as English or French. If we could specify exactly the code which we call English, we would have taken the first and most important step in the direction of specifying the nature of the language learning device. The second step would be to specify the actual learning process whereby a person grapples with the code and masters it. The trouble with this approach is massive, however: we are very far indeed from being able to specify a code like English, and we are even farther from being able to specify the language learning process. Of any natural language we know that it has a

lexicon, a sound system, and a set of structural rules. But anyone who is even vaguely familiar with linguistics knows that each is the subject of vigorous controversy. Katz and Fodor (1963) have made an interesting beginning in the description of the sort of lexicon which English users carry about in their head; Quillian (1967, 1968, and 1969) has gone further than they did, and attempted to build a computor model of a human lexicon; but I (Macnamara, 1971) have argued elsewhere not only that their work is defective in detail but that they have taken the wrong direction. The obscurities of phonology and syntax are acclaimed in every book and paper one reads on these subjects. The work of structural and transformational linguists amounts to a very considerable deepening of our understanding of the rules of phonology and syntax. However, every linguist would I think agree with Professor Lakoff's (1970) statement in a recent paper that we can scarcely claim to have done more than introduce the subjects.

The essential obscurity of language is in its loose relationship to that elusive and inapprehensible process which we call thought. A single word, like back, can have many meanings (e.g., rear part of a body, to wager), while a single object or idea can be expressed by several words (e.g., drink, intoxicated). A single syntactic device can have quite different semantic functions (e.g., I have a pin; I have a pain), whereas a single semantic relationship can be signalled by means of a variety of syntactic devices (e.g., My hair is black; I have black hair). To make matters even worse, many ideas are conveyed without the use of any explicit linguistic device. For example, the directive, close the door, does not carry any explicit indication that you has been deleted and is understood. The problem is even more deeprooted than this example implies. The command, put on your shoes, does not express the you, but neither does it specify where the shoes are to be put (on the feet, not on the hands), nor even on whose feet (yours rather

than mine). So rich and powerful is the human interpretative system that much can be left unsaid. To express everything one intends is to be a bore - it may even be impossible in principal. One result of all this is that the line which divides language and thought is a very thin one, and there is usually doubt about where it should be drawn. In this connection see Uriel Weinreich's (1966) reintroduction of the medieval problem of relating semantic and grammatical categories. He raises serious doubts about whether one can usefully call categories such as noun and verb grammatical, while one calls categories such as animate and inanimate semantic. On the other hand, Noam Chomsky (1965) had great problems deciding whether to treat the selection restrictions on lexical items as grammatical or semantic. In other words, should we regard The stone loved as ungrammatical or just nonsense. All in all, then, it is difficult to say what we learn when we learn a language.

It is even more difficult to specify the learning process. Several factors which have an effect on certain types of learning have been isolated by psychological research. But I think it fair to say that the core of the process still eludes us. However, I will return to this topic later in my paper.

Cognitive basis of language learning.

If we were to ask teachers, as I have often done, what is the essential difference between the classroom and the street as a place in which to learn a language, they would answer motivation. I am sure that the teachers are right; we do not seem to have adequately motivated children in classrooms to learn a language. Notice, however, that in so answering, teachers avoid the problems with which we have been dealing. They do not seek in the essential nature of language or language learning for the difference between the classroom and

the street. Neither do they attribute the difference to the essential nature of the language learning device. They seem to say, rather, that whatever the nature of that device, it does not function properly unless a person is highly motivated to make it function.

I have argued elsewhere (Macnamara, in press) that infants learn their mother tongue by first determining, independent of language, the meaning which a speaker intends to convey to them, and then working out the relationship between the meaning and the expression they heard. In other words, the infant uses meaning as a clue to language, rather than language as a clue to meaning. The argument rests upon the nature of language and its relation to thought, and also upon the findings of empirical investigations into the language learning of infants. The theory is not meant to belittle the child's ability to grapple with intricate features of the linguistic code. These must be grasped even if the clue is usually - though by no means always - to be found in meaning. The theory claims that the main thrust in language learning comes from the child's need to understand and to express himself.

Contrast, now, the child in the street with the child in the classroom. In the street he will not be allowed to join in the other children's play, not be allowed to use their toys, not even be treated by them as a human being, unless he can make out what they say to him and make clear to them what he has to say. The reward for success and the punishment for failure is enormous. No civilized teacher can compete. But more to the point, the teacher seldom has anything to say to his pupils so important that they will eagerly guess his meaning. And pupils seldom have anything so urgent to say to the teacher that they will improvise with whatever communicative skills they posses to get their meaning across. If my analysis of infant language learning is correct, as I

believe it to be, it can surely explain the difference between the street and the classroom without placing any serious strain on the analogy between first and second language learning.

The solution then is to make the language class a period of vital communication between teacher and pupils. How simply that is said! Of course I have no practical hints. Though I was a language teacher for several years myself, that was a long time ago and in any case I was a slave to public examinations. Moreover, there is no point in my entering into competition with talented teachers who did not surrender their minds to the last half century's talk about methods, and always saw language as essentially linked to communication. Nevertheless, the theory I am proposing does suggest some broad strategies which I may mention with impunity.

An infant could not guess what his mother was saying to him unless there were a good many surrounding clues. Mother usually talks to a small child only about those things which are present to the senses, things that the child can see, feel, smell, taste, hear, things which are happening or which the child or she herself is doing. Nearly always, too, a mother's speech carries exaggerated intonational patterns. Indeed a mother's speech to an infant is intonationally often quite distinct from her speech to others. All of this together with the mother's facial expressions is a strong clue to her meaning or intention. It enables the child to determine her meaning and use it as the key to the code she uses to express her meaning in. The teacher, then, would be wise to provide as many aids as possible to his meaning. And he should encourage the pupils to guess. This probably implies that he should be slow to give the child the meaning in the child's native tongue.

Parents are proud of any effort which a small child makes to express himself in words. They welcome his phonological innovations; they accept his

bits of words; and they understand his telegraphese. As a matter of fact, parents seldom correct a small child's pronunciation or grammar; they correct his bad manners and his mistakes on points of fact (see Gleason, 1967). Somehow, when a child is vitally concerned with communication he gradually gets over his difficulties and eradicates errors, at least to a point where society accepts his speech. That is, vitally engaged in the struggle to communicate and supported by the approval of his parents, he makes steady progress. His parents' attention is on his meaning, not on his language, and so probably is his own. And curiously he and his parents break one of psychology's basic learning rules. Psychology would advise that he should be rewarded only for linguistically correct utterances, whereas parents reward him for almost any utterance. But then the folk wisdom of the Italians, which is older than experimental psychology has created a proverb which gives the lie to psychology and agrees with parent and child -- sbagliando s'impara (by making mistakes we learn). Perhaps in all this there is a lesson for the schoolmaster. Perhaps he should concentrate more on what the child is saying and less on how he says it. Perhaps the teacher should lay aside the red pencil with which he scored any departure from perfection, and replace it with a word and a smile of encouragement. The Irish too - not to be outdone by the Italians - have their folkwisdom: mol an óige agus tiochfaid sí (praise youth and it will come).

Some dubious folklore.

Just to show I'm not a complete reactionary who accepts everything from the bosom of the race, I will devote the remainder of my paper to a critical analysis of two common beliefs: (1) the child learns a language informally,

whereas the adult learns it formally; (2) the adult is a much poorer language learner than the child.

From what I have said about the possibility of specifying the elements and rules of a language, it follows that the term formal learning can be applied to language in only the loosest sense. If we cannot reduce language to formula, we cannot learn it by formula. The extent to which we cannot formulate a language is the extent to which our learning of it cannot be formal, and this is to a very great extent. On the other hand there are useful rules or formulas which capture some of the regularities of a language. It is the case that these are often explicitly taught to adults, and they are never taught to infants. May we not speak of the adults learning as being to this extent formal, and that of the infant as informal? And if so, is this an important difference? A firm answer is of course impossible, but the issue is an interesting one which merits close attention.

We are familiar with all sorts of rules which will serve to illustrate the problem. The beginner at chess is taught the rules of the game and when asked he is usually able to state them. On the other hand the boy who is learning to cycle is usually not taught the rules of balancing the bicycle, nor does anyone explain to him the complications of following curvilinear paths at different speeds as he alternately presses on the left and right pedals. Furthermore the cyclist cannot normally state the rules he applies. Rules, then, can be possessed in an explicit or stateable form, or they may not. Take now the man who is learning to ski. His tutor gives him many rules to follow, but he also tells him that he must not be satisfied until he has formed the rules in his legs. As he makes progress he begins to feel the rightness of the rules; they take on a new existence in him, though he still can state them in the explicit form in which he learned them.

It is my belief that in the skilled performer all rules must exist in a non-explicit form; they may exist in an explicit form as well. It is further my belief that in the initial stages of learning explicit rules can guide the construction of structures which implicitly incorporate the rules. It is these structures, not the explicit rules, which control skilled performance. This I believe to be true even of the chessplayer: he does not when playing recall explicitly all the rules which inform his perception of the board. However, the gap between explicit rules and performance is less in chess than in skiing. From my earlier remarks on language it follows that language is closer to skiing than to chess, at least in the relationship between rules and performance.

Though we cannot be certain that infants are unconscious of all the linguistic rules which they develop, they certainly must be unconscious of many of them. Similarly, the successful learner of a second language has a great many implicit rules which he is unable to formulate. And only when he has developed structures which implicitly incorporate those rules which he learned in an explicit form will he be able to apply them with mastery.

What I want to say is this. The human language learning device serves to construct in a non-explicit form a set of non-conscious rules which guide listening and speaking. The device can either extract the non-explicit rules from the corpus of the language which is to be learned, or it can construct them on the basis of explicitly stated rules of the sort one finds in grammar books. The whole process is very obscure indeed, but I don't see anything against explicit rules and, with two provisos, they are probably a great help. First, the student must not expect to find rules for everything; he must trust his common sense or linguistic intuition. Second, he must learn to get on as soon as possible without explicit rules; he must be prepared to

surrender himself to their automatic operation. I imagine that the only reason for distrusting explicit rules is the fact that some people have difficulty in abiding by these two counsels.

The second common belief which I wish to discuss is that one's language learning device atrophies rather early in life. The evidence for this is that babies pick up their mother tongue with what seems like great ease, and young children in suitable environments pick up a second language with little trouble, whereas adults seem to struggle ineffectively with a new language and to impose the phonology and syntax of their mother tongue on the new language. The argument has been supported with some evidence from neurophysiology (Penfield and Roberts, 1959), but the value of this evidence is dubious, to say the least.

I suspect that the evidence which most supporters of the theory draw upon confounds two phenomena, the child in the street and the child in the school. Small children don't go to school; older ones usually learn languages in school rather than in the street. We have already seen that these two phenomena must be distinguished. But besides all this many families have the experience of moving to a new linguistic environment in which the children rapidly learn the language and the adults don't. This happened frequently to English families which moved to one of the colonies, such as India. In such cases, the linguistic experience might well be attributed to unfavorable attitudes towards the new language which the parents but not the children adopted. However, Italian families which migrated to the United States often met with a similar linguistic fate - the children learned English, and the parents, despite favorable attitudes, did not. Is this conclusive evidence that language learning ability atrophies?

No! Let us take clear examples; let us compare a man of forty with an infant. We could not prove that the man was less skilled in language learning unless we gave the man an opportunity equal to that of the child to learn a language. We would need to remove the man from the preoccupations of his work and supply him with a woman who devoted a large part of her time and energy to helping him to learn the language. Further, the woman would have to behave just like the mother of a small baby, which among other things would include treating anything the man said in his mother tongue as she would treat a child's babbling. Naturally such an experiment has never been carried out, and for that reason there are almost no grounds for the general fatalism about adults' ability to learn languages. On the contrary, what experimental evidence we have suggests that adults are actually better than children. Smith and Braine (in press) found adults superior in the acquisition of a miniature artificial language, while Asher and Price (1967) found adults superior at deciphering and remembering instructions given in what to them was a foreign language. Thus there are grounds for optimism in this area.

However there is evidence that adults and even teenagers generally have difficulty in mastering the pronunciation and intonational patterns of a new language, or even a new dialect. Labov (1966) found that persons who moved to Manhattan after the age of twelve seldom came to sound exactly like persons who grew up there. Similarly, persons who learn a language after adolescence usually sound a little bit foreign. But this does not mean that they do not communicate in that language very effectively and even quite normally. It is unwise to overemphasize their phonological difficulties. Apart from this there is no evidence that after adolescence one cannot learn a language as rapidly and as well as a small child.

Conclusion

One of the main tasks of linguists and psycholinguists is to make a systematic assault on the language learning device which is so remarkable in man. At present we know nothing of it in detail. We do, however, know that it is essentially geared to human thought and to its communication. It does not seem to function at all well unless the learner is vitally engaged in the act of communicating. This seems to be the reason why language teachers have laid such stress on motivation. It is my belief, however, that there has been quite a lot of confusion about the nature of such motivation. It has commonly been conceived (see for example Lambert, 1967) as a general desire to learn a language, and some attention has been paid to different grounds, "instrumental" or "integrative", for such a desire. This approach has led to interesting results. However, the logic of my paper demands a quite different emphasis; it demands that we look for the really important part of motivation in the act of communication itself, in the student's effort to understand what his interlocutor is saying and in his effort to make his own meaning clear. All this is not of course unrelated to a more general motivation to learn a language. The fact that superior attainment in language is associated with integrative motivation argues for a close relationship; after all the integrative attitude is defined as a general desire to communicate with speakers of the new language. But more pressing for most students than a general desire to be able to communicate at some future date is a specific desire to be able to communicate in some actual situation where what is being communicated is of vital concern to the persons involved. It is in the exploration of such specific motivation that I look for substantial advances in language teaching.

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